

comprising an outer edge at the edge opposite to the neck portion, lateral faces transverse to the direction of rotation and flank surfaces in the direction of rotation;

the flank surfaces of the sector element are provided with holes and act as filter surfaces;

the filter cloth is arranged against said filter surfaces,

the sector element comprises at least one fastening groove, wherein a fastening strip is arranged for fastening the filter cloth on the sector element; and

the fastening strip is an elongated piece having a substantially T-formed cross section and comprising

(a) a fastening portion made from flexible material and so dimensioned that it is deformed when inserted into said fastening groove and generates a fastening force and

(b) a support portion that is transverse to the fastening portion and remains outside the fastening groove and extends to a predetermined distance from the edge of the fastening groove on both sides thereof.

14. (Amended) The filter unit of claim 7, wherein at least a surface of the support portion facing the filter element is curved.

15. (Amended) The filter unit of claim 7, wherein the support portion of the fastening strip narrows towards transverse edges of the fastening strip.

### REMARKS

This Amendment is being filed in response to the Office Action dated September 6, 2002. For the following reasons this application should be in condition for allowance and the case passed to issue.

No new matter has been introduced by these amendments. The amendments to claims 1 and 7 are supported by the Specification at page 4, lines 8-12. The amendments to claims 2, 3, 4, 14, and 15 correct informalities.

### ***Drawings***

The Examiner objects to the drawings because of the placement of "PRIOR ART" in Fig. 1. In response to this objection, a proposed drawing correction is attached in a separate paper.

### ***Claim Rejections Under 35 U.S.C. § 112***

Claims 2, 3, 4, 14, and 15 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. The Examiner asserts that there is insufficient antecedent basis for "at least the surface on the side of the sector element," in claims 2 and 14; "the transverse edges of the fastening strip," in claims 3 and 15; and "the sector element," in claim 4. This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

Claims 2, 3, 4, 14, and 15 have been amended to correct the asserted informalities. Applicants submit that claims 2, 3, 4, 14, and 15 fully comport with the requirements of 35 U.S.C. § 112.

### ***Claim Rejections Under 35 U.S.C. § 102***

Claims 1, 4, and 6 are rejected under 35 U.S.C. § 102(b) as being anticipated by Denhard (U.S. Patent No. 2,061,351). This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the instant invention as claimed and the cited prior art.

An aspect of the invention, per claim 1, is a fastening strip for fastening a filter cloth to a filter element of a solid-liquid separator. The fastening strip has a substantially T-

shaped cross section comprises a fastening portion and a support portion. The fastening portion is made from flexible material and is so dimensioned that it is deformed when inserted into the fastening groove. A support portion that is transverse to the fastening portion and remains outside a fastening groove is dimensioned so as to extend to a predetermined distance from the edge of the fastening groove on both sides thereof.

Denhard discloses a filter leaf with a L-shaped gasket 11 and a T-shaped gasket 12. L-shaped gasket 11 does not form a portion on both sides of a fastening groove, as required by claim 1. Moreover, the L-shaped gasket 11 of Denhard serves to seal the frame 1, and not to fasten the filter cloth to the filter element, as required by claim 1. Denhard discloses a slot in the frame 1 that the filter leaves are passed through for assembly (column 1, lines 46-51). T-shaped gasket 12 is used for sealing the assembly slot in the frame 1. Therefore, T-shaped gasket 12 does not fasten a filter cloth to a filter element, as required by claim 1. Denhard does not disclose a fastening strip for fastening a filter cloth to a filter element, rather Denhard discloses the gaskets 11, 12 seal the frame 1 or a junction between the frame 1 and the filter medium 2.

Furthermore, there is no need for a fastening strip in the filter leaf of Denhard. The filter leaf of Denhard comprises a pair of panels of filter medium 2, 3 and a drainage screen 4 pushed inside frame 1 and held in place by the U-shaped profiles of the frame. The filter element can be removed only through the assembling slot in the frame.

In addition, Denhard is **silent** about the material of the gaskets 11, 12. Because the gaskets only serve as seals, they can be made of any material, including non-deformable material. Denhard does not teach the use of flexible material in the gaskets. Denhard does not teach that the gaskets generate a fastening force when deformed, as required by the

instant claims. As disclosed by Denhard, the T-shaped gasket 12 is held in place by pressing flanges 8, 9 against the gasket 12 by a split tube 13 which has a spring action (column 2, lines 18-25). The T-shaped gasket of Denhard is not held in place by deformation of the gasket, and the gasket can be made of non-deformable material, unlike the claimed fastening strip.

The factual determination of lack of novelty under 35 USC § 102 requires the disclosure in a single reference of each element of a claimed invention. *Helifix Ltd. v. Blok-Lok Ltd.*, 208 F.3d 1339, 54 USPQ2d 1299 (Fed. Cir. 2000); *Electro Medical Systems S.A. v. Cooper Life Sciences, Inc.*, 34 F.3d 1048, 32 USPQ2d 1017 (Fed. Cir. 1994); *Hoover Group, Inc. v. Custom Metalcraft, Inc.*, 66 F.3d 299, 36 USPQ2d 1101 (Fed. Cir. 1995); *Minnesota Mining & Manufacturing Co. v. Johnson & Johnson Orthopaedics, Inc.*, 976 F.2d 1559, 24 USPQ2d 1321 (Fed. Cir. 1992); *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051 (Fed. Cir. 1987). Because Denhard does not teach the fastening strip for fastening a filter cloth to a filter element comprising a fastening portion and a support portion, wherein the fastening portion is made from flexible material and is so dimensioned that it is deformed when inserted into the fastening groove and generates a fastening force, and a support portion that is transverse to the fastening portion and remains outside a fastening groove is dimensioned so as to extend to a predetermined distance from the edge of the fastening groove on both sides thereof, as required by claim 1, Denhard does not anticipate claim 1.

Dependent claims 4 and 6 are allowable for at least the same reasons as claim 1. In addition, the dependent claims further distinguish the claimed invention. For example, claim 6 requires that the fastening portion of the fastening strip is made from a flexible

compressible material. The Examiner asserts that the Denhard gaskets are made of a flexible compressible material, such as rubber. As known to one of ordinary skill in this art gaskets are not inherently made of a flexible compressible material, such as rubber. The attached definition of gasket -- "a shaped sheet or ring of rubber **or other material** sealing the junction between two surfaces in an engine or other device," (emphasis added) (*The New Oxford Dictionary of English*) shows that rubber is only an exemplified gasket material, not that gaskets are inherently formed of a flexible compressible material, such as rubber. It is well known in the art that gaskets can be made of aluminum, brass, and other metals. The term "gasket" means a seal, not a flexible material. Seals are used for sealing, not fastening.

***Claim Rejections Under 35 U.S.C. § 103***

Claims 1, 4, 6-9, 16, and 18 are rejected under 35 U.S.C. § 103 as being unpatentable over Simonson (U.S. Patent No. 4,139,472) in view of Denhard. This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the instant invention as claimed and the cited prior art.

An aspect of the invention, per claim 7, is a filter unit for a disc filter, wherein the filter unit comprises a sector element, filter cloth, and fastening strip. The fastening strip is an elongated piece having a substantially T-shaped cross section comprising a fastening portion and a support portion. The fastening portion is made from flexible material and so dimensioned that it is deformed when inserted into the fastening groove and generates a fastening force. A support portion that is transverse to the fastening portion and remains outside a fastening groove is dimensioned so as to extend to a predetermined distance from the edge of the fastening groove on both sides thereof.

The Examiner asserts that Simonson substantially teaches the claimed filter unit except for the fastening strip having a substantially T-formed cross section. The Examiner maintains that it would have been obvious to modify the fastening strip of Simonson by substituting it with the gasket 12 of Denhard. The Examiner concludes such a substitution would have been obvious in order to provide an alternative and improved design for a fastening strip to hold a filter cloth to a filter element without the use of messy adhesives.

Simonson, however, does not cure the deficiencies of Denhard. As acknowledged by the Examiner, Simonson does not disclose a fastening strip having a substantially T-formed cross section. As explained above, Denhard also does not disclose the fastening strip having a substantially T-formed cross section, as required by claims 1 and 7. The combination of Simonson and Denhard would not provide the claimed invention. Applicants further submit that Simonson and Denhard, whether taken alone, or in combination, do not suggest the claimed invention.

Neither Simonson nor Denhard provides the asserted motivation for combining the two references. The motivation asserted by the Examiner is apparently a hindsight reconstruction of the instant invention. However, the teaching or suggestion to make a claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

According to the Examiner, it would be obvious to substitute the rope 124 of Simonson with the gasket 12 of Denhard. Simonson teaches forcing the rope into a groove 122 and using adhesive material to generate a fastening force. It would, however, not be logical to use a seal (gasket) for fastening purposes. There is no suggestion to use a gasket

as a fastener in the cited references. Even if the gasket of Denhard were substituted into the groove 122 of Simonson, the gasket 12 would not be held into the groove 122. It would not be possible to arrange the split tube 13 of Denhard for generating a spring force to keep the gasket 12 in the groove 122. Furthermore, the outermost end of the sector should also be modified so that the dimensions of the groove 122 would change according to the spring force generated by the split tube 13 of Denhard. These modifications would destroy the functionality of the Simonson filter. If a proposed modification would render the prior art invention unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

Claims 2, 3, 14, and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Simonson and Denhard and further in view of Erland (U.S. Patent No. 5,318,422). This rejection is traversed, and reconsideration and withdrawal thereof respectfully requested.

The Examiner acknowledges that the combination of Simonson and Denhard fails to teach the recitation of at least a surface of the support portion of the fastening strip being curved, such as the surface being on the side of the sector element. The Examiner, asserts that it would have been obvious to modify the combination of Simonson and Denhard by adding the embodiment disclosed by Erland in order to provide an alternative design/configuration. The Examiner concludes that the curved edges of the Erland design would provide a more stable and firmer grip on the filter cloth being fastened onto the sector element.

Claims 2, 3, 14, and 15 are not suggested by the combination of Simonson, Denhard, and Erland. Erland does not cure the deficiencies of Simonson and Denhard. Therefore, claims 2, 3, 14, and 15 are allowable for at least the same reasons as independent claims 1 and 7. In addition, claims 2 and 14 require that at least a surface of the support portion facing the filter element is curved. As clearly shown in Fig. 3 of Erland, the inner surface of the support portion of spline 36 is not curved. The outer surface of the spline 36 appears curved, however, claims 2 and 14 require that at least a surface of the support portion facing the filter element is curved. Therefore, the combination of Simonson, Denhard, and Erland does not suggest the claimed fastening strip and filter unit.

Furthermore, there is no suggestion to modify Erland so that the inner surface of the support portion of the spline is curved. There is no need for a curved inner surface since the outermost edges of the channel member 30 are flat.

The dependent claims are allowable for at least the same reasons as the independent claims. In addition, the dependent claims further distinguish the claimed invention. For example, claim 9 further requires that the fastening groove is arranged at least on one lateral face of the blade portion of the sector element. Simonson, however, only discloses the fastening groove 122 at the outer edge of the sector element (Fig. 9). In the lateral faces transverse to the direction of rotation, Simonson discloses grooves 58 for metal rods 32 (Fig. 2). Therefore, the combination of Simonson and Denhard would not provide the filter unit, as required by claim 9.

Dependent claims 4 and 16 require that the support portion comprises a flat portion on the surface opposite the sector element. Dependent claims 3 and 15 require that the support portion narrows towards the transverse edges of the fastening strip. The cited



references do not suggest the claimed fastening strip and filter unit with these additional limitations.

In light of the Amendments and Remarks above, this application should be considered in condition for allowance and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciate to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned VERSION WITH MARKINGS TO SHOW CHANGES MADE.

Respectfully submitted,

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE CLAIMS:**

Claims 1, 2, 3, 4, 7, 14, and 15 have been amended as follows:

1. (Amended) A fastening strip for fastening a filter cloth to the filter element of a solid-liquid separator, wherein

the solid-liquid separator comprises a body portion rotatable around its horizontal axis, two or more adjacent filter elements arranged on the periphery of said body portion, each filter element comprising at least one filter surface provided with holes, against which surface the filter cloth is arranged, and at least one fastening groove arranged in connection with the filter element, in which groove the fastening strip is to be arranged for fastening the filter cloth; and

the fastening strip is an elongated piece having a substantially T-formed cross section and comprising

(a) a fastening portion made from flexible material and so dimensioned that it is deformed when inserted into said fastening groove and generates a fastening force and

(b) a support portion that is transverse to the fastening portion and remains outside the fastening groove and is dimensioned so as to extend to a predetermined distance from the edge of the fastening groove on both sides thereof.

2. (Amended) The fastening strip of claim 1, wherein at least [the] a surface [on the side of the sector element] of the support portion facing the filter element is curved.

3. (Amended) The fastening strip of claim 1, wherein the support portion narrows towards [the] transverse edges of the fastening strip.

4. (Amended) The fastening strip of claim 1, wherein the support portion comprises a flat portion on the surface opposite to the [sector] filter element.

7. (Amended) A filter unit for a disc filter, wherein the disc filter comprises a body portion that is rotatable around its horizontal axis and on whose periphery are arranged two or more filter units that form a disciform structure;

the filter unit comprises a sector element, a filter cloth and a fastening strip;

the sector element comprises a neck portion for fastening the sector element to the body portion of the disc filter, a flat substantially triangular hollow blade portion comprising an outer edge at the edge opposite to the neck portion, lateral faces transverse to the direction of rotation and flank surfaces in the direction of rotation;

the flank surfaces of the sector element are provided with holes and act as filter surfaces;

the filter cloth is arranged against said filter surfaces,

the sector element comprises at least one fastening groove, wherein a fastening strip is arranged for fastening the filter cloth on the sector element; and

the fastening strip is an elongated piece having a substantially T-formed cross section and comprising

(a) a fastening portion made from flexible material and so dimensioned that it is deformed when inserted into said fastening groove and generates a fastening force and

(b) a support portion that is transverse to the fastening portion and remains outside the fastening groove and extends to a predetermined distance from the edge of the fastening groove on both sides thereof.

14. (Amended) The filter unit of claim 7, wherein at least [the] a surface [on the side of the sector element] of the support portion [of the fastening strip] facing the filter element is curved.

15. (Amended) The filter unit of claim 7, wherein the support portion of the fastening strip narrows towards [the] transverse edges of the fastening strip.